

***EUPITHECIA MASSILIATA* DARDOIN & MILLIÈRE  
(LEP.: GEOMETRIDAE) – A PUG MOTH NEW TO  
THE BRITISH FAUNA FROM EPPING FOREST**

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**Abstract**

The occurrence of *Eupithecia massiliata* Dardoin & Milière (Geometridae) in Britain is reported for the first time. The record is discussed and pointers are given for recognition of the species. The vernacular name of Epping Pug is proposed.

**Introduction**

In April 2002, Mr Tim Green informed me of two unusual pugs, both apparently of the same species, which he had trapped at his business premise, which borders the eastern part of Epping Forest, Essex. Mr Green was kind enough to send me both digital images of the living moths and subsequently the specimens for further examination. The pair consist of a male and female and are both small, at 18mm wingspan for the female and 19mm for the male. The forewing colour is essentially a mid brownish-grey with conspicuous black or dark grey cross lines, consisting of small wedges and streaks, making the wings appear darker than they actually are. There is a pale subterminal line, which ends with a pair of pale spots in the tornus, the upper being large and fairly prominent. The discal spot is black and elongated, but obscured by a dark crossline, which runs through it. Each forewing appears rather short and ample, with a rounded tip and arched costa.

At Epping two other *Eupithecia* species fly at this time of year – the Brindled Pug *E. abbreviata* and early examples of the Oak-tree Pug *E. dodoueata*. I dissected the genitalia of both specimens and found a number of differences from the two above species (Plate J). Various people were subsequently contacted for opinions. One suggestion was that the female could be unmated and the genitalia not fully formed, and so the pair could possibly be a strange variety of *E. abbreviata* (Epping does produce some oddities, such as the *coluumbina* aberration of *Nola confusalis* H.-S.). However, this did not feel a particularly comfortable explanation. Here the matter rested until the publication of volume 4 of *The Geometrid moths of Europe* (Mironov, 2003), when it became clear that the genitalia resembled those of the Mediterranean species *E. massiliata*. I contacted Colin Plant for his opinion, and he kindly forwarded a series of digital images of the adult insect, and of the genitalia, to Peder Skou (Apollo Books, Copenhagen) and Axel Hausmann (General Editor of the series *The Geometrid Moths of Europe*), who both felt that the identification as *E. massiliata* was probably correct. Because, however, of the less than expected occurrence of that species in Britain, the images were forwarded to Dr. Vladimir Mironov – the authority on the genus *Eupithecia* – at the Insect Systematics Laboratory, St. Petersburg; he almost immediately confirmed, via e-mail to Colin Plant, that the tentative identification was indeed correct.



**Plate J.** *Eupithecia massiliata* Dardoin & Millière, ♀. Epping Forest, Essex, 2.iv.2002. Upperside.



**Plate K.** *Eupithecia massiliata*, Genitalia of ♂, with aedeagus in situ. Epping Forest, Essex, 13.iv.2002.



**Plate L.** *Eupithecia massiliata*. Sclerotised portion of eighth sternite of ♂ in Plate K (the "anal plate").



**Plate M.** *Eupithecia massiliata*, Genitalia of the ♀ in Plate J. Epping Forest, Essex, 2.iv.2002.

### Identification

The female adult is illustrated in Plate J. Given the flight time, the only species likely to be confused with *E. massiliata* would be small, dark examples of *E. abbreviata*. The forewings of *E. abbreviata* are longer and the costa straighter, giving the insect at rest a distinctive angular outline. The ground colour is a warm brown, overlaid by extensive dark grey patches forming clouds rather than the well-defined crosslines in *E. massiliata*. Two or three dark streaks distad of the discal spot are usually an obvious feature in *E. abbreviata*; in *E. massiliata* these are represented by three shallow wedges. Finally the discal spot in *E. abbreviata* is longer and narrower, and not partially obscured by a crossline.

Male genitalia: Plate K & L. A prominent feature of the male genitalia is an extension to the sacculus, blunter than in *E. abbreviata* and not present at all in *E. dodoneata*. The sclerotised, ventral plate on the eighth sternite (the “anal plate”) is narrower than in *E. abbreviata* and *E. dodoneata* and bears at its tip two pincer-like claws. This should serve to distinguish the males from all other British pugs of the same sex.

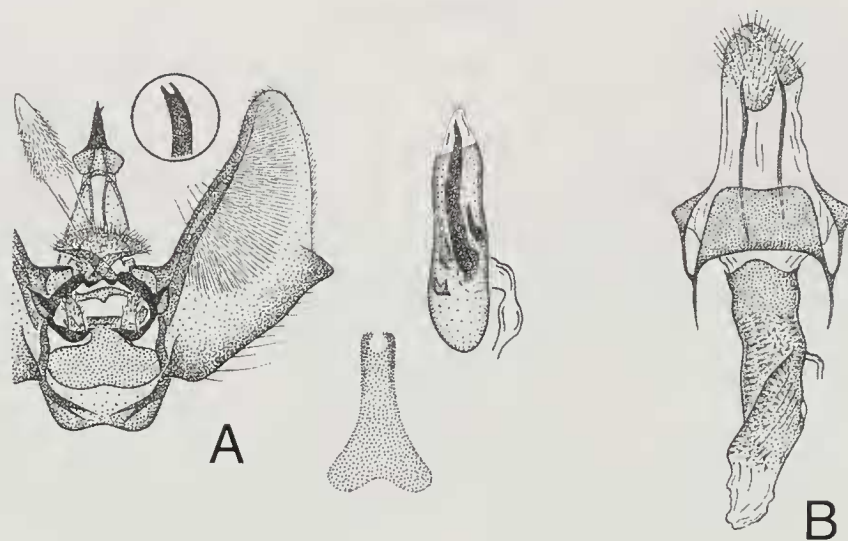
Female genitalia: Plate M. This bears no resemblance to either *E. abbreviata* or *E. dodoneata*. The *bursa copulatrix* is very small, singularly folded or twisted, containing a number of noticeable spines along one side. There is a membranous pouch, or diverticulum and the *ductus bursa* is extremely short. There are minor differences between the female genitalia illustrated by Mironov (2003) and the Epping Forest female (a digital image of the genitalia of which has been examined by Mironov). Dr Mironov has informed me, via Colin Plant, that he may have cut short the diverticulum in preparing the illustrated slide. Accordingly, he has kindly allowed us to reproduce his own genitalia drawings here to avoid all possible confusion.

### Ecology

*Eupithecia massiliata* is a species of the western Mediterranean region and adjacent Atlantic areas, affecting Portugal and the seaboard areas of southern and eastern Spain, of southern France east to, but not entering, Italy, and of north African from Tunisia westwards. The larvae feed on flowers and leaves of various species of oak, *Quercus coccifera*, *Q. suber* (Cork Oak) and *Q. ilex* (Mironov, 2003). Cork could presumably be used as a pupation site and so provide a method of transportation into this country.

### British status

The female was found on the side of a mercury vapour trap on 2 April 2002. The male was boxed on 13 April 2002 inside an outbuilding, on the wall of a cold store used to house worms of various types. These worms are originally imported from the USA, Canada and Hungary, which are areas of the world not affected by this species and so are most unlikely to be the source. However, Mr Green also occasionally imports cork from Portugal, an area where the moth does in fact occur; this cork is not fumigated



**Fig. 1.** Genitalia of *Eupithecia massiliata*. A: male, B: female. Both drawings were executed by Dr. V. Mironov. Copyright ©Apollo Books, and reproduced with permission.

before it reaches our shores and frequently hosts ants and other insects. It seems likely, therefore, that the origin of the Epping pair is Portugal and their presence in Britain is purely one of a fortuitous nature. The female was trapped in the open, and the male is likely to have flown into the outbuilding from outside, attracted perhaps by its lights. Whether the species could colonise Britain remains to be seen; a survey in April 2003 and constant monitoring by Mr Green during the flight period has revealed no further specimens.

That having been said, two other species – *E. phoeniceata* and *E. ultimaria* – both of which have a Mediterranean distribution, have recently appeared in Britain under their own steam; the possibility that the Epping Forest moths are of natural occurrence is remote but should not be completely ignored. *Quercus ilex*, at least, grows in Epping Forest, whilst both *Quercus coccifera* and *Q. suber* exist in the wider landscape as planted specimen trees.

*Eupithecia massiliata* should follow *E. dodoneata* in the British Checklist and can be given the log-book number of 1853a. I suggest that the vernacular name *Epping Pug* be applied to this species.

### Acknowledgements

I am especially grateful to Dr Vladimir Mironov for confirming the identification of this species from electronic images sent by Colin Plant and also for his permission to reproduce, here, his own excellent male and female genitalia drawings. I am most grateful to Colin Plant (Bishops Stortford), Peder Skou (Apollo Books, Copenhagen) and Axel Hausmann (Zoologische Staatssammlung, Munich) for facilitating the confirmation of my tentative identification by Dr. Mironov.

### Reference

Mironov, V., 2003. *The Geometrid moths of Europe*. 4. Larentiinae II (Perizomini and Eupitheciini). Apollo Books, Stenstrup.